

Atty. Docket No. PPW06-574DS
Serial No: 10/736,063

Amendments to the Claims

Please amend Claims 1, 7, 16, and 17, delete Claims 14 and 15, and add new claims 22 and 23, as shown below. This listing of Claims replaces all prior versions and listings of the Claims in this application.

Listing of Claims

1. (Currently Amended) A method of forming a gate in a semiconductor device, the method comprising:

forming a trench—shallow trench isolation (STI) to define an active region in a semiconductor substrate;

forming a gate oxide layer on the semiconductor substrate;

forming on the semiconductor substrate a sacrificial layer;

selectively etching the sacrificial layer to form a sidewall opening over an area—the active region of the semiconductor substrate including—and the trench STI until the gate oxide is exposed;

forming a polycrystalline silicon layer on an area of the gate oxide layer exposed through the sidewall opening and on the sacrificial layer;

anisotropically etching the polycrystalline silicon layer such that sidewall gates remain on sidewalls of the sidewall opening, the sidewall gates having a minimum width; and

removing the sacrificial layer.

2. (Original) A method as defined by claim 1, wherein the sacrificial layer comprises a nitride layer.

3. (Previously Presented) A method as defined by of claim 2, wherein removing the nitride layer comprises a wet etching process.

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4. (Previously Presented) A method as defined by claim 1, wherein removing the sacrificial layer comprises a wet etching process.

5. (Previously Presented) A method as defined by claim 1, wherein anisotropically etching the polycrystalline layer comprises an etch-back process.

6. (Previously Presented) A method as defined by claim 1, wherein a thickness of the sacrificial layer determines widths of the sidewall gates.

7. (Currently Amended) A method as defined by claim 1, wherein the width of the sidewall opening corresponds to a width-distance from one gate to an adjacent gate.

8. (Original) A method as defined by claim 7, wherein the sacrificial layer comprises a nitride layer.

9. (Previously Presented) A method as defined by claim 8, wherein removing the nitride layer comprises a wet etching process.

10. (Previously Presented) A method as defined by claim 7, wherein removing the sacrificial layer comprises a wet etching process.

11. (Previously Presented) A method as defined by claim 7, wherein anisotropically etching the polycrystalline layer comprises an etch-back process.

12. (Previously Presented) A method as defined by claim 7, wherein a thickness of the sacrificial layer determines a width of the sidewall gates.

13. (Cancelled)

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14. (Cancelled)

15. (Cancelled)

16. (Currently Amended) The method of claim 5, wherein the etch-back process comprises over etching the sidewall gates to athe minimum width.

17. (Currently Amended) The method of claim 11, wherein the etch-back process comprises over etching the sidewall gates to athe minimum width.

18. (Previously Presented) The method of claim 1, further comprising depositing a photoresist layer on the sacrificial layer.

19. (Previously Presented) The method of claim 18, further comprising patterning the photoresist layer to form an opening exposing a predetermined area of the sacrificial layer.

20. (Previously Presented) The method of claim 19, wherein the opening comprises an area on the substrate from where one sidewall gate will be formed to where an adjacent gate will be formed.

21. (Previously Presented) The method of claim 19, wherein the opening encompasses an area on the substrate from where one sidewall gate will be formed to where an adjacent gate will be formed.

22. (New) The method of claim 1, wherein forming the STI defines a plurality of active regions in the substrate, and etching the sacrificial layer forms an opening over at least two of the active regions and the STI.

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23. (New) The method of claim 1, wherein etching the sacrificial layer exposes the active region and the STI.